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CC:
Subject: WSJ: Drillers Face Methane Concern; Contamination of Water Supply Near Gas-Drilling Operations Prompts Industry Focus on Design of Wells

Drillers Face Methane Concern

Contamination of Water Supply Near Gas-Drilling Operations Prompts Industry Focus on Design of Wells

By RYAN TRACY

GRANVILLE SUMMIT, Pa.—Sherry Vargson has cooked with water from a five-gallon jug for the past year. It's inconvenient, but preferable to using tap water containing enough methane gas that she can light a match and see an orange flame flare out of the faucet.

Many water supplies in northern Pennsylvania have long contained detectable levels of methane, because of poorly constructed water wells and the unusual geologic features here. But the contamination in Ms. Vargson's existing well is among the first cases that state regulators have attributed to natural-gas drilling, prompting a normally competitive group of drilling companies to work together to fix the problem.

Cases like Ms. Vargson's are gaining more attention amid a boom in U.S. natural gas production. But methane-leakage problems in water wells are distinct from problems that some environmentalists attribute to hydraulic fracturing or fracking, a drilling technique that involves injecting water, sand, and chemicals deep underground to break up gas-bearing rock.

Industry officials agree that methane leakage into the water table during gas drilling can occur in theory, although in specific cases there may be a dispute about whether it did occur. Because the drilling may be a prelude to gas extraction through fracking, many people consider any problem to be fracking-related.

However, while gas-drilling operations can lead to methane leaks, the commencement of fracking comes later in the process and companies say it has nothing to do with methane leaks.

The industry agrees that methane leaks are a risk of drilling, and it says it can prevent them. It points to Pennsylvania's cooperative effort as an example of how companies make safety their top priority.

"This is mission critical," said Kathryn Klaber, president of the Marcellus Shale Coalition, an industry group. At meetings on methane, she said, "we have no challenges with attendance."

The outcome of industry efforts to clear away methane concerns will affect decisions in other states that sit atop underground gas reserves. New York and Maryland have effectively halted new drilling as they review safety issues.

"Improved performance is a necessary prerequisite to improved public acceptance of natural gas development," said a June study by the Massachusetts Institute of Technology's Energy Initiative, an ongoing research effort into global energy issues.

Battles over natural-gas exploration have gained importance with the rise of hydraulic fracturing. Antifracking groups contend that the drilling chemicals in fracking could reach groundwater, a scenario the industry says is unlikely because the chemicals are used so far below the earth's surface.

When it comes to problems with methane, the industry says that even if drilling caused that gas to enter water supplies, the culprit would be poorly designed wells, not the fracturing process.

Methane is not a toxin, according to the U.S. Agency for Toxic Substances and Disease Registry, but it can pose a hazard by building up inside structures and causing explosions.

In May, Pennsylvania regulators fined Chesapeake Energy Corp. \$900,000 for contaminating the water supplies of 16 homes in Bradford County, Pa., with methane, including the water well at the Vargson home. Cabot Oil & Gas Corp. settled a similar case affecting 19 homes in Dimock, Pa., for \$4.1 million in December.

Each company says it is not clear that its wells were the source of the methane.

"I believe that we are doing everything we can to construct our wells properly and safely and that we are not contributing to the problem," said Dave Bert, vice president of drilling for Chesapeake's eastern division.

In response to problem wells, operators have added an extra layer of steel casing and devised new cement mixtures to create a more effective seal. Companies test water supplies near their wells before they start drilling, in part to avoid blame for methane that is naturally occurring.

Ms. Klaber of the Marcellus Shale Coalition said operators in the Marcellus region, which includes parts of Pennsylvania, Ohio, West Virginia, and New York, are spending between 10 and 12 hours a month together at roundtables and on conference calls.

Chesapeake and Royal Dutch Shell PLC have both met with the U.S. Geological Survey to discuss efforts to better map the depth of Pennsylvania groundwater in order to protect it during the drilling process—a line of research that Cabot is also pursuing, according to a spokesman.

Scott Perry, head of oil and gas at Pennsylvania's environmental regulator, praised the industry for making "important improvements" and drilling most wells safely, but he isn't fully satisfied.

"Do I think that they have achieved the standards that people want them to achieve? No," he said. "We want to see 100% success. We don't want to have any gas migration cases."

In February, Pennsylvania incorporated many of the new practices for sealing wells into its regulations.

Ms. Vargson and her husband used to maintain a herd of 70 dairy cattle but got out of that business because of methane problems with their well water. The couple now work at other jobs and worry their son won't be able to farm here either. Ms. Vargson once allowed Chesapeake to drill a gas well in the pasture behind her home, but the experience has raised doubts. Drilling "can be done safely," she said. "I believe that the technology is there." But she added: "I believe that for the most part the industry takes a lot of shortcuts."